Calgary

City Auditor's Office

2017 Municipal Election Review

July 17, 2018

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The City Auditor's Office completes all projects in conformance with the *International Standards for the Professional Practice of Internal Auditing.*

Executive Summary

General elections in Calgary are complex events held every four years, allowing electors to vote for Mayor, Councillor, and Public and Separate School Board Trustee candidates. The last Calgary election was held on October 16, 2017. The public expressed concerns about their Election Day experience, including long line ups at voting stations and delays in reporting of election results. The City responded to these concerns on October 17, 2017, confirming the accuracy of election results and compliance with legislation, as well as committing to improving election processes. As part of the process improvement initiative, the City Clerk/Returning Officer requested that City Auditor's Office undertake a root cause analysis review.

The original objective of this review was to conduct a root cause analysis of the unexpected events that negatively impacted the voter experience and to evaluate proposed strategies to improve the Election Day process. As new strategies and processes are not yet fully defined as part of the Elections and Census (Elections) four-year elections program development project, and therefore cannot be evaluated, this report comments only on the root cause analysis. The City Auditor's Office will issue a final report reflecting evaluation of Elections' proposed strategies in 2019.

Our root cause analysis identified four significant contributing factors that led to increased voter wait times, voting station accessibility concerns and delays in the reporting of election results on Election Day. Three significant contributing factors, if not addressed, could result in the reoccurrence of increased voter wait times and accessibility concerns in future elections:
- Insufficient initial ballot supply.
- Insufficient voting station selection process.
- Absence of a detailed staffing plan.

A fourth contributing factor which delayed the reporting of Election Day results was insufficient After the Vote procedures to support voting stations in accounting for ballots supplied, completing the ballot count, and communicating results to the Elections Office.

Our analysis determined that The City's web server, which was unavailable for a period of time during Election Day due to high demand, was not a contributing factor to delayed reporting of Election Day results. The web issue was resolved at 10:45pm, however less than 20% of voting station results were available to report at that time. As electors were in line to vote at 8pm (when voting stations closed), this resulted in further delays to After the Vote procedures, and therefore had a compounding impact to delayed reporting of Election Day results.

We raised four recommendations to minimize the identified contributing factors and to improve voter experience during the next 2021 Election Day. The City Clerk/Returning Officer has agreed to all of our recommendations and has set action plan implementation dates no later than September 30, 2019. The City Auditor's Office will assess action plan progress to these recommendations as part of our subsequent review of Elections' proposed strategies to improve the Election Day process. We anticipate this evaluation will occur during Q4, 2019.

City Clerk/Returning Officer - Management Response Overview

Elections Calgary has a long-standing reputation of delivering legislatively compliant elections. As highlighted in the City Auditor's report, the 2017 General Election while legislatively compliant, delivered an election that resulted in voter, worker and public frustration. The recommendations highlight the need for Elections Calgary to create an integrated approach for the development of election processes to ensure improvements are maximized for voters, workers and the general public.

Elections Calgary is in the process of developing a four-year program and related governance structures. The City Clerk/Returning Officer is responsible for developing and implementing a coordinated and documented election program in preparation for the 2021 General Election. Activities toward these goals have been started in earnest. With the holding of the Vote of the Electors (Olympics Plebiscite) in 2018, any improvements made will be reflected and refined in the four-year program developed by September 2019.

The City Clerk/Returning Officer fully agrees with the City Auditor's recommendations based on the internal reviews completed since the 2017 General Election. Elections Calgary remains committed to delivering a legislatively compliant integrated election that meets the expectations of Calgarians.

1.0 Background

The Election and Census (Elections) Division of the City Clerk's Office administer all aspects of the Calgary general election for Mayor, Councillors, and Public and Separate School Trustees. The election process is governed by the Alberta Local Authorities Election Act, the Calgary Election Regulation and 10 bylaws that regulate the conduct of elections in Calgary such as election and voting processes, and voter eligibility.

The 2017 Calgary General Election Guide provided information and guidance to electors, such as who is eligible to vote, and when and where electors may vote. A number of voting options were available for eligible electors in addition to voting stations on Election Day, including advance vote, mail-in (special ballot), voting in hospitals and care facilities, and incapacitated voting at home. Eligible voters could vote on Election Day between 10 a.m. and 8 p.m. at a regular voting station in the area they reside by showing required identification, confirming their eligibility to vote, receiving, marking and casting their ballots. On Election Day there were 166 regular voting stations across 14 wards in the city.

The City Clerk is appointed by Council to perform the duties of The City of Calgary's Returning Officer, which include establishing voting stations and appointing and assigning a presiding deputy returning officer (PDRO), deputy returning officers and other election workers at each voting station as required. The PDRO is responsible for the overall conduct of their assigned voting station. PDRO's are assigned an assistant presiding deputy returning officer at larger voting stations who may be assigned a number of duties except those assigned specifically to the PDRO by the Alberta Local Authorities Election Act. All voting stations are assigned a varying number of deputy returning officers 1 and 2 (DRO 1 and DRO 2) who perform key voting station responsibilities. DRO 2's are responsible for finding or writing up the elector registration card, reviewing identification, and assisting in the count of ballots. DRO 1's are responsible for monitoring completion of the voter registration card, initialing and issuing ballots, balancing ballots provided, and assisting with the count of the ballots. Calgary utilizes a manual count process, as it has done in all previous general elections. A new area supervisor role was created by Elections for the 2017 General Election. An area supervisor was assigned to each ward to visit each voting station to assess voting station layout and effectiveness, answer PDRO questions and concerns, and provide additional ballots or other supplies if needed.

The Calgary General Election was held on October 16, 2017 and experienced the third highest voter turnout on Election Day in the last 20 years. The public expressed concerns about their Election Day experience, including long line ups at voting stations and delays in reporting of election results. The City Clerk/Returning Officer provided a report to Council on December 18, 2017 identifying the majority of public concerns that arose from Election Day legislative and administrative process matters and committed to reviewing the following areas:
- Election Day Process Legislative Matters
- Ballot Supply, Demand and Distribution on Election Day
- Voting Station Placement and Accessibility
- Staffing, Training and Voting Process Review
- Election Technology, Reporting and Information Sharing Capabilities
- Ward Boundaries Changes.

The City Clerk/Returning Officer is currently working with city staff and external contractors to develop and invest in a four-year elections program development project to meet the needs of voters, media and candidates. The City Clerk/Returning Officer requested that the City Auditor

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conduct a root cause analysis review of the key issues which occurred on Election Day and to evaluate proposed strategies to be included in the four-year election program being developed to improve the Election Day process. As a result, this review was included as part of the City Auditor's Office 2018 Annual Audit Plan.

2.0   Audit Objectives, Scope and Approach

2.1   Audit Objective
The objective of this review was to conduct a root cause analysis of the unexpected events that impacted a positive voter experience on Election Day and to evaluate proposed strategies to improve the Election Day process. The objective was achieved by holding interviews with key Elections staff and other temporary election workers, review of available election and voting process documentation, incident reports and other relevant election records, and assessment of proposed improvement strategies.

As new strategies and processes are currently being defined as part of the Elections Office four-year elections program development project, this report focuses on the root cause analysis, and a subsequent report from the City Auditor's Office will be issued in 2019 focusing on an evaluation of proposed strategies.

2.2   Audit Scope
The scope of this review was focused on the election processes and related activities that impacted the voter election experience on Election Day on October 16, 2017. As such, this review excluded all activities occurring during the Advance Vote, and verification of the Election Day results conducted by Elections staff. The purpose of the review was not to provide assurance over the accuracy of the Election Day results, compliance with legislation, or to perform a comprehensive assessment of opportunities for improvement.

2.3   Audit Approach
Our analysis was performed in two separate phases:
- Phase 1: Conducted interviews to identify and understand key unexpected events that occurred on Election Day.
- Phase 2: Performed root cause analysis of the key unexpected events identified in Phase 1.

3.0 Results

We conducted interviews in Phase 1 of our review to identify and understand the key unexpected events on Election Day, including long voter wait times, accessibility concerns and delays in election results reporting, and to identify focus areas for our root cause analysis in Phase 2 of our review.

3.1 Phase 1 Interviews Conducted

We interviewed 16 key Election Day staff and workers using pre-prepared interview questions (Appendix A). To obtain a broad understanding of events and activities during Election Day, interviews included available senior Elections staff, a sample of City staff from other Business Units supporting Elections, and a sample of temporary election workers, specifically:

- Seven permanent Elections staff, including the City Clerk/Returning Officer
- Three City staff providing Election Day support from Customer Service and Communications, Information Technology, and Law
- Two ward area supervisors
- Four presiding deputy returning officers

The table below summarizes areas of concern, including the number of interviews that raised the same area of concern and the estimated risk impact on the unexpected events of Election Day such as increased wait times, accessibility and delays in results reporting, that were raised as concerns by the public.

Table: Summary of Interview Results

	Event Category	#. of Interviews	Risk Impact
1.	Ballot Supply and Distribution	16	High - Increased voter wait times
2.	Election Day Results Reporting	8	High - Reporting timelines did not meet public expectations
3.	Voting Station Processes and Staffing	7	High - Increased voter wait times
4.	Voting Station Facility Accessibility and Space	6	High - Reduced voter convenience and increased voter wait times
5.	Elections Office Staffing	12	Medium – Internal worker impact and indirect impact on unexpected events.
6.	"Where do I Vote" Online Search	4	Medium – Online search slowdown was a source of public complaints
7.	Voting Hours	4	Medium – Late 10 a.m. opening was a source of public complaints
8.	Ward Boundary Changes	3	Medium – Voter confusion was a source of public complaints
9.	PDRO Check-in Process	8	Low – Internal worker impact due to long wait times checking-in supplies and equipment at end of Election Day

	Event Category	#. of Interviews	Risk Impact
10.	New Ward Area Supervisors Role	5	Low - Staffing of role had an impact on issue # 5
11.	Ballot Quality	3	Low - Election worker impact (difficult to tear and fold ballots)
12.	Voter Eligibility	1	Low – Eligibility rules are stipulated by the Province

The results of these in-depth interviews provided corroboration of the key unexpected events of Election Day and focused our root cause analysis in Phase 2 in the following top risk categories:
1. Voting Station Ballot Supply and Distribution
2. Voting Station Facility Accessibility and Space
3. Voting Station Processes and Staffing
4. Election Day Results Reporting.

3.2 Phase 2 Root Cause Analysis
In Phase 2 of our review we performed a root cause analysis of the key unexpected events on Election Day of long voter times, accessibility concerns and delays in election results reporting, and focused on the four areas identified in Phase 1 of our review.

3.2.1 Voting Station Ballot Supply and Distribution
We analyzed the initial voting station ballot supply, usage and resupply based on election records available, additional Elections staff inquiries, and review of available election process documentation, incident reports and election worker surveys.

Records of ballots returned to Elections at the end of Election Day confirmed that all voting stations had sufficient ballots for all electors who remained in line to vote after voting stations closed at 8 p.m. However, the initial ballot supply to voting stations on Election Day was insufficient, particularly for Councillor and Public School Trustee ballots. This led to widespread requests for additional ballots from voting stations and resulted in reports of ballot shortages (refer to Figure 1).

The Elections procedures include a process to determine ballot allocation to voting stations (via assignment to election workers at each voting station) based on an in-house developed IT application. However, staff inquiries indicated that a spreadsheet was used instead of the IT application as part of ballot preparation for the 2017 Election Day. We were unable to review the actual calculations used in the spreadsheet, due to a lack of records available and recent staff turnover.

The number of ballots initially supplied to each voting station was based on the number of DRO 1's assigned to each voting station rather than directly to the number of enumerated electors. All DRO 1's were initially supplied with 500 Mayoral, 300 Councillor, 200 Public School Trustee and 100 Separate School Trustee ballots. We were unable to determine the rationale for this ratio distribution, as the ratios were not based on historic voting patterns, nor did they reflect anticipated voting on Election Day (the actual 2017 voter turnout for Councillor vote was equivalent to 94% of the Mayoral voter turnout).

We compared ballots supplied to voting stations (based on planned staffing) and the official election results, and estimated that 95 (57%) regular voting stations required the supply of additional Councillor ballots (see Figure 1 Voting Stations Requiring Additional Councillor Ballots).
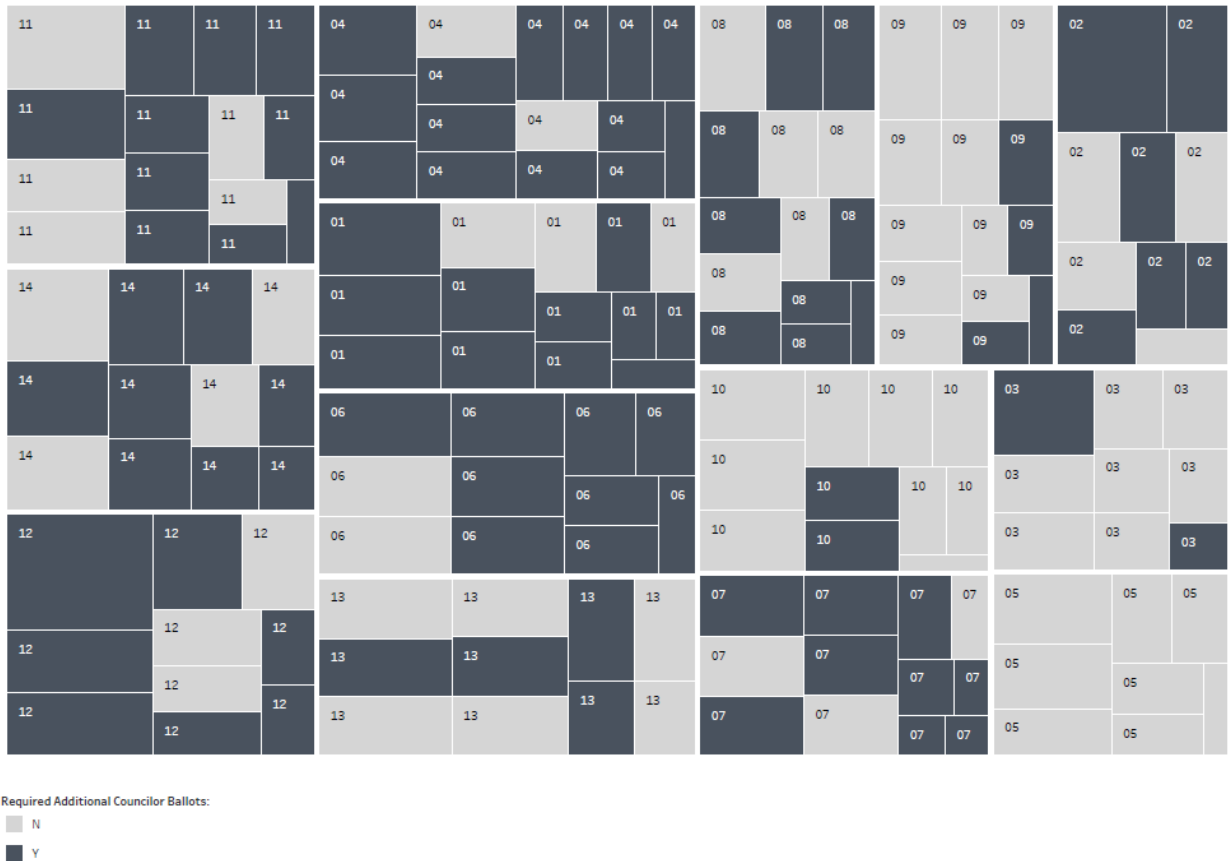

Required Additional Councilor Ballots:
- N
- Y

Figure 1: Voting Stations Requiring Additional Councillor Ballots including ward number (source: City Auditor's Office)

We also estimated that 78 (47%) of regular voting stations required additional Public School Trustee ballots, and 2 (1%) of voting stations required additional Separate School Trustee ballots.

Voter wait time impact could not be determined as no records were available to identify which voting stations ran out of ballots, including type of ballot, time of outage and resupply. However, some voting stations reported waiting for more than six hours for additional ballots.

Staff interviews identified that a lack of sharing of ballots amongst DRO 1's contributed further to increased voter wait times. Elections procedures emphasized individual election worker accountability for ballots allocated rather than voting station accountability, which may have deterred DRO 1's from sharing ballots with other DRO 1's who ran out of ballots at voting stations that had sufficient ballots overall.

We recommended that the City Clerk/Returning Officer establish voting station ballot allocation procedures based on the estimated number of electors and historic voting patterns for each ballot type to avoid wide-spread ballot shortages in future elections (Recommendation 1).

Staff interviews and subsequent media reports identified the high voter turnout on Election Day as a significant contributing factor behind widespread requests for additional ballots. However, our analysis showed that voter turnout on Election Day in 2017 was the third highest in the last 20 years, and less than Election Day in 2010 both in terms of the number of voters and as a percentage of enumerated voters.

Staff interviews also identified that the Elections Office had an ineffective ballot distribution process for supplying voting stations with additional ballots during Election Day. Based on Elections manual distribution records for additional ballots, 99 (60%) voting stations requested additional ballots from the Elections Office. In addition, an estimated 84 (51%) of voting stations had additional ballots delivered by area supervisors, with some voting stations receiving multiple deliveries from both Elections Office and area supervisors. There was no triage system in place to identify the most urgent requests for ballot resupply, coordination of deliveries by Elections Office and area supervisors, or any collated electronic record of additional ballots supplied to voting stations. We did not raise a recommendation to improve the ballot re-distribution process as we determined the underlying causation factor was the initial supply of ballots. Staff interviews identified that a smaller number of ballot shortages occurred on Election Day in 2010 and additional ballots were supplied without issue.

3.2.2 Voting Station Facility Accessibility and Space

We analyzed voting station facilities accessibility, space and parking based on election records available, additional Elections staff inquiries, and review of available election process documentation, and election worker surveys. Voting station accessibility (and parking) ensure that all electors have the opportunity to vote. Voting station space can impact voter wait times as the current election process requires sufficient space for a number of election workers, and to allow electors to line up four separate times to receive their registration card and ballots, and to mark and cast their ballots (See Figure 2 Sample Voting Station Layout).
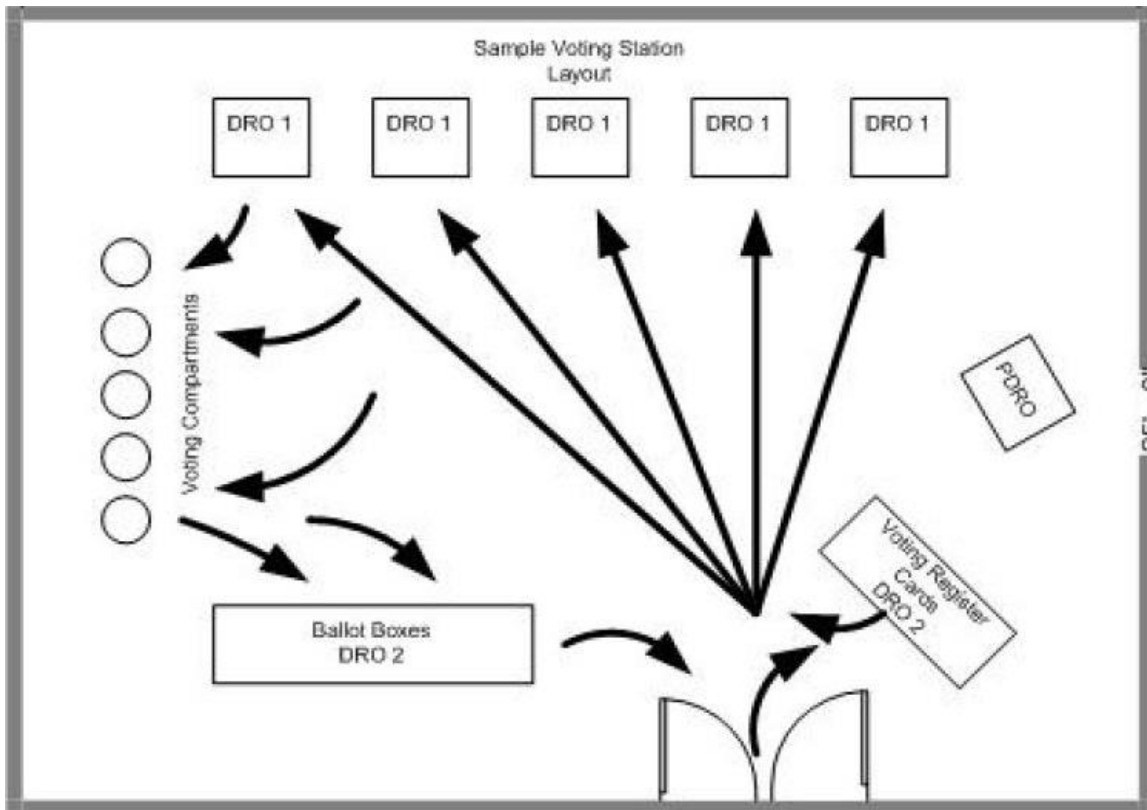

Figure 2: Sample Voting Station Layout (source: Elections)

Elections had procedures for identifying, booking and confirming voting stations that included the possibility of site visits and high level common attributes to look for such as "parking arrangements" and "handicapped accessibility". However, Elections did not have a defined process and criteria (see Section 4.2, Recommendation 2) to ensure all voting station facilities met minimum access and space standards expected by stakeholders, including additional consideration of accessibility, parking and space needed to serve subdivisions with large numbers of enumerated electors.

Our analysis of enumerated voters in each voting station subdivision showed while the average voting station served ward subdivisions with approximately 4,000 enumerated electors and the smallest had just over 1,000 enumerated electors, the two largest "superstations" served subdivisions with over 10,000 enumerated electors (see Figure 3

Voting Station Subdivision Size by Number of Enumerated Electors – darker colours show larger numbers of enumerated electors).
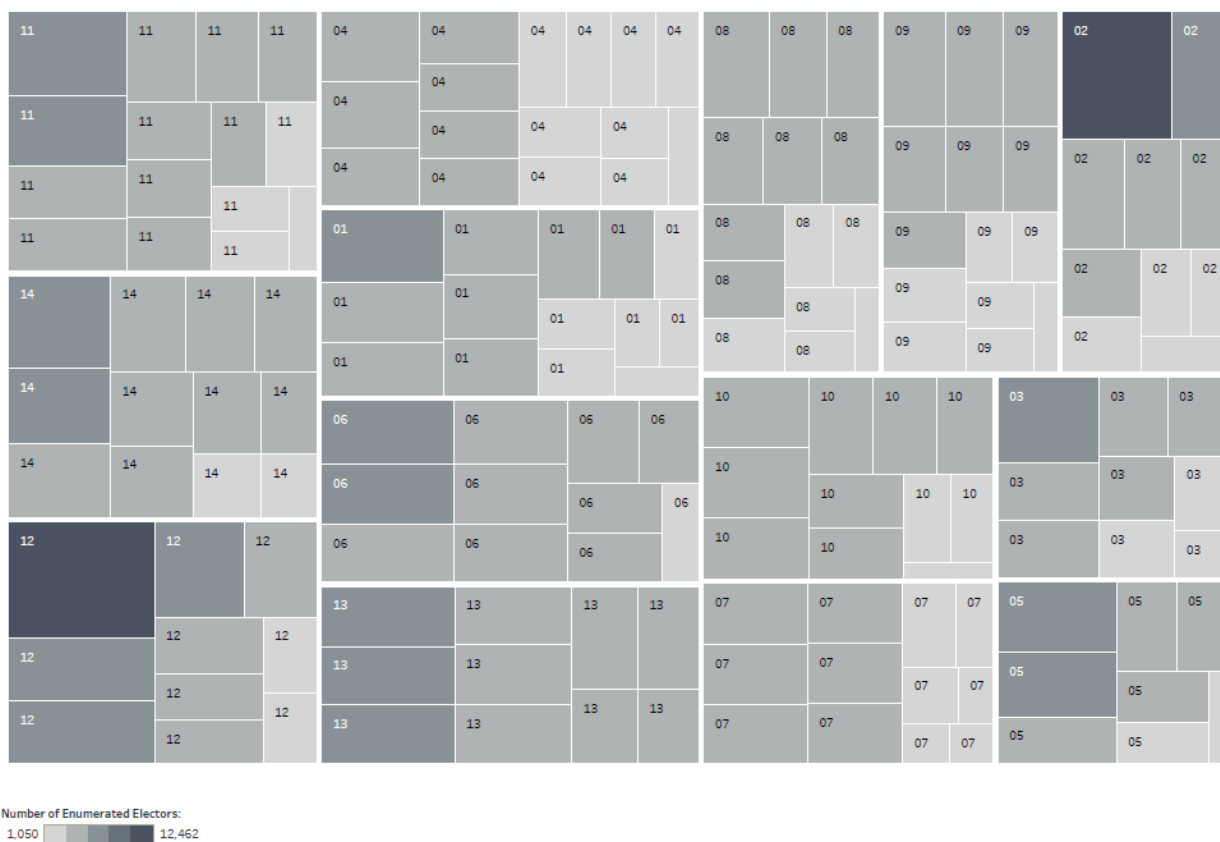

Figure 3: Voting Station Subdivision Size by Number of Enumerated Electors including ward number (source: City Auditor's Office)

There was no record to support additional consideration of facility accessibility and space issues, such as additional space for electors with mobility issues, adequate parking availability, or traffic control necessary to accommodate the large number of enumerated voters at these two voting stations.

An Elections worker survey identified that over 9% of responding voting stations did not have satisfactory accessibility and space, including lack of wheelchair access or space that was too small for the number of election workers and voters. We could not obtain facility inspection documents, agreements or other documentation needed to independently confirm the number of voting stations impacted by facility issues due to a lack of records maintained.

We could not quantify the impact that facilities issues had on the voter experience or voter wait times, or measure how many citizens chose not to vote when expectations regarding accessibility or wait times were not met. However, voting station accessibility and space issues were identified, through interviews and comments received in the Elections election worker survey, as having impacted the voter experience, including increased voter wait times where the voting station was too small for the number of election workers and voters.

3.2.3 Voting Station Processes and Staffing

We analyzed voting station processes and associated staffing based on election records available, additional Elections staff inquiries, and review of available election process documentation and election worker surveys.

As illustrated previously in Figure 2, the process utilized on Election Day involves a system of four separate queues at each voting station to allow electors to cast their vote. As a result, the efficiency of the process is heavily dependent on sufficient staff at each voting station to process electors in a timely manner and minimize queue wait times. It was noted in staff interviews and Elections worker survey comments that longer wait times did occur where staffing shortages existed.

We analyzed the allocation of election workers to voting stations by comparing numbers of election workers hired to numbers of elections workers that should have been allocated to each voting station based on internal standards established by Elections. Elections standards allocate workers to voting stations based on numbers of enumerated voters in the voting station sub-division. Results across all voting stations are shown in Figure 4, where darker colours indicate voting stations with less staff allocated than expected based on Elections standards. Nine voting stations in ward subdivisions serving large numbers of enumerated electors had between 17% and 44% fewer staff than standard. Election worker survey responses also indicated insufficient staff allocated to voting stations, particularly DRO 1's and 2's.
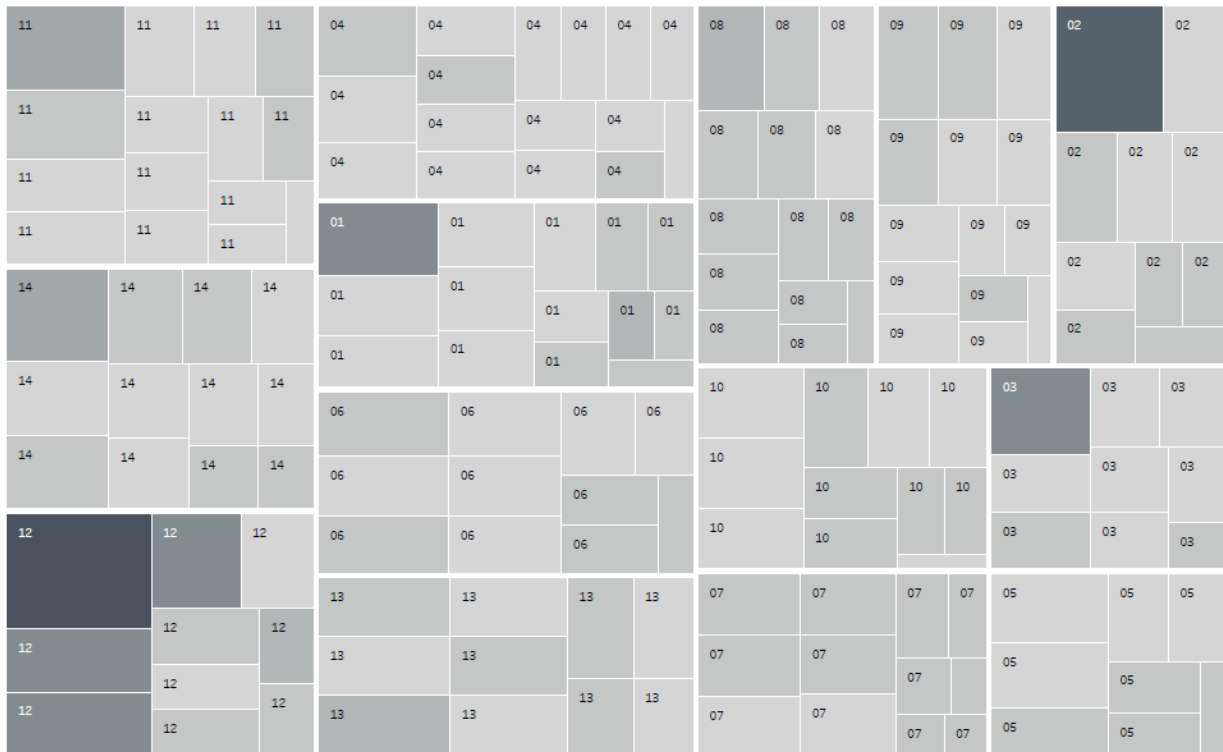
Number of Staff Below/Above:
-17 ▮▮▮▮▮▮ 2

Figure 4: Regular Voting Station Staffing vs. Current Elections Staffing Standard including ward number (source: City Auditor's Office)

We recommended (Section 4.3) that the City Clerk/Returning Officer develop a voting station staffing plan based on analysis of process, staff capacity and acceptable wait times, to support the future allocation of sufficient staff to voting stations.

Data on actual numbers of election workers (rather than allocated staff) in attendance at voting stations on Election Day was not retained by Elections so further analysis could not be performed. We identified through interviews that the Elections Office employed standby staff who were available to replace election workers to address unexpected staff shortages on Election Day. Individual voting stations could contact the Elections Office to obtain additional election workers to fill vacancies from this standby group of staff. We were unable to confirm whether this process was utilized due to lack of information available.

As shown in Figure 2 above and described in Section 1.0 there are up to four key distinct election worker roles stationed at each voting station:
- PDRO: responsible for the overall conduct of their assigned voting station.
- Assistant Presiding Deputy Returning Officer: assigned to larger voting stations to support the PDRO.
- DRO 1: responsible for monitoring completion of voter registration cards, initialing and issuing ballots and (after the last vote is cast) accounting for ballots issued and assisting with the ballot count.
- DRO 2: responsible for retrieving (or creating if needed) the elector registration card, reviewing voter identification, and assisting in ballot counting.

Training provided to election workers is specific to their role which meant workers could not be easily re-deployed within voting stations to assist with any process bottlenecks. Staff interviews identified that the current staffing model lacks flexibility to redeploy staff where they are needed most, and that standby staff were not proactively utilized to provide relief at busier voting stations.

Although a number of opportunities for process improvement were identified by interviewees, including a reduction in the number of elector lines and other potential process opportunities for improvement, overall voter wait times would have been more aligned with public expectations if staffing at voting stations had been critically planned, all facilities met defined minimum criteria (Section 3.2.2), and the distribution of the initial supply of ballots was aligned to historic voting patterns and the estimated number of electors (Section 3.2.1).

3.2.4 Election Day Results Reporting

We analyzed Election Day results reporting (focused solely on regular voting stations) based on voting station reporting time records available, additional IT staff inquiries, and review of the IT debrief and IT incident report available, election process documentation, and election worker surveys.

The process to enable Election Day results to be made available to the public (see Figure 5 below) is dependent on the actions taken by all individual voting stations to allow the Elections Office to collate and publish overall results.
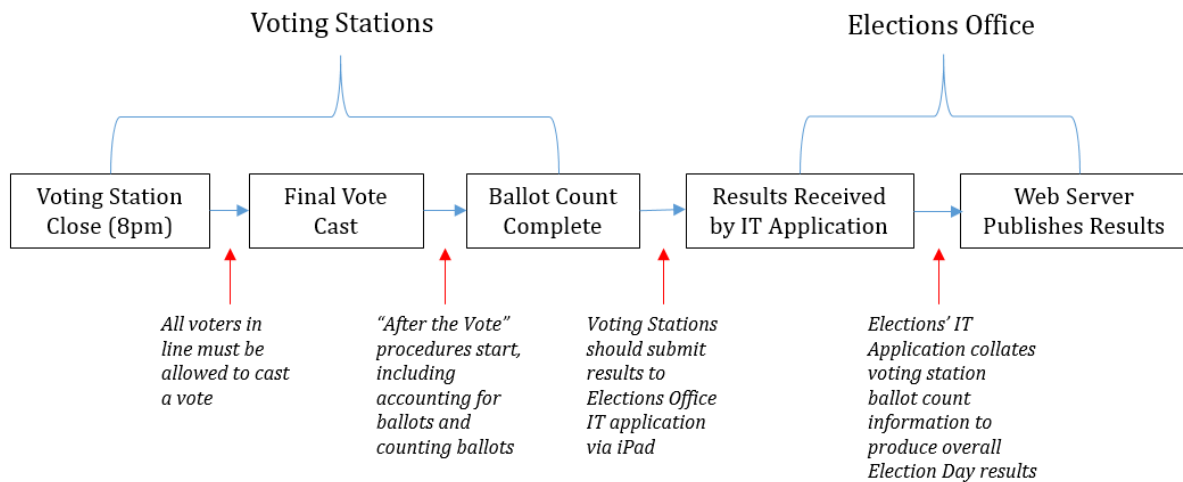

Figure 5: Election Day Results Reporting Process (source: City Auditor's Office)

The IT incident report from Election Day identified that the web server used to report results to both the public and media became non-responsive at approximately 8:54 p.m., and a workaround to report results was started around 10:45 p.m. The IT debrief identified that the significant contributing factor leading to web service failure was that web traffic attempting to connect to the web server was several orders of magnitude higher than the web server was load tested to handle. Excessive web traffic combined with the "auto-refresh" of the results web page caused the web server to become overloaded. With available network server capacity exhausted, the results web page could not be accessed by the public and data access for media partners timed out waiting for a connection.

Analysis of the time by which individual voting stations were able to report their results to the Elections Office (utilizing time stamps from the Elections Office's IT application) showed that even if the web server had continued to function correctly and allow public access to results, late voting station reporting of results to the Elections Office (see Figure 6 Regular Voting Station Reporting of Results) would have led to delays in availability of overall Election Day results. Less than 20% of voting stations had reported their results to the Elections Office by the time the web server manual workaround allowed public reporting of overall election results to resume.
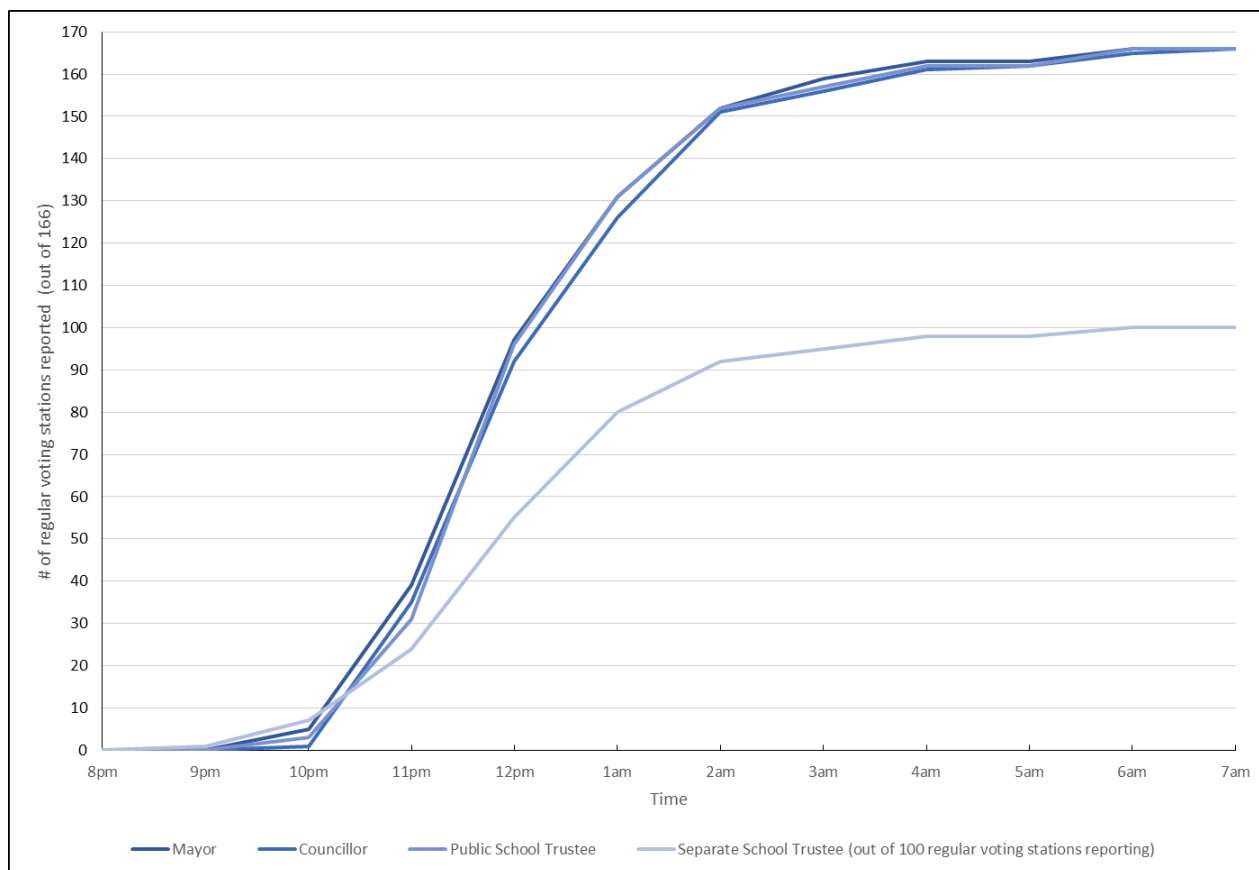

Figure 6: Regular Voting Station Reporting of Results (source: City Auditor's Office)

Elections did not maintain additional time records to support further analysis of the reporting process (e.g. time last vote was cast or time ballot count was started/finished at voting stations). Our analysis of interview and survey results, as well as available process documentation indicated that the significant contributing factor which delayed the reporting of Election Day results was insufficient After the Vote procedures to support voting stations in accounting for ballots supplied, completing the ballot count, and communicating results to the Elections Office.

After the close of voting (After the Vote) procedures include a description PDRO and DRO 1 & 2 duties such as closing the voting station, accounting for ballots issued, establishing count teams, packing ballots and completion of Elections checklists and other paperwork. However, After the Vote procedures did not clearly identify the sequence of critical steps to be completed prior to reporting results or expected timelines for completion of milestones. Interviews with voting station staff and comments received in Elections' survey of elections workers indicated uncertainty around the sequence of procedural steps and sources of guidance for procedures in the event of challenges experienced.

We recommended that the City Clerk/Returning Officer document and communicate the voting station critical path of After the Vote procedures required for timely reporting of election results, including the sequence of procedures and expected timelines for completion of key milestones to support the timely availability of results to the public (Recommendation 4).

As the process to enable Election Day results to be made public is linear, delays in casting the last vote at individual voting stations also contributed to the delay in providing overall Election results. All voters in line at a voting station at 8 p.m. (when voting stations close) must be allowed to cast their vote. After the Vote procedures at voting stations, including ballot balancing and ballot counting, cannot start until after the last vote is cast. Increased voter wait times (see Sections 3.2.1 – 3.2.3 above) led to a buildup of waiting voters at 8 p.m., and therefore contributed to the delay in providing Election Day results to the public.

Election staff interviews identified that The City of Calgary has always utilized a manual ballot count process, and that this increases the time needed to complete After the Vote procedures. In future elections, the City Clerk/Returning Officer may consider moving to an automated count process, for example utilizing ballot tabulators to automatically count ballots. It is likely the introduction of automation could reduce the actual ballot count time in future elections. However, Elections Office collation and publishing of overall results is dependent on the completion of accounting for ballots and other After the Vote procedures by voting stations. As a result it is unlikely that automation alone will prevent unnecessary delays in the reporting of results unless the significant contributing factors identified in this report are also addressed.

4.0 Observations and Recommendations

Our observations and recommendations related to the significant contributing factors that, if not addressed, may result in the reoccurrence of unnecessary voter wait times, accessibility concerns and delay in results reporting in future elections.

4.1 Ballot Supply and Distribution
The initial ballot supply to voting stations on Election Day was insufficient and was not based on enumerated voters or analysis of historic/anticipated voting patterns.

A 300:500 ratio of Councillor to Mayoral ballots was supplied to voting stations on Election Day as Elections assumed that significantly fewer citizens would vote for Councillor. However, official voting results showed that the voter turnout for Councillor vote was equivalent to 94% of the Mayoral voter turnout.

Based on the official election results and planned staffing at each voting station, we estimated that 95 (57%) of regular voting stations on Election Day required additional Councillor ballots to avoid running out. Similarly to the Councillor ballot shortage, we also noted the allocation for Public School Trustee Ballots was inadequate resulting in an estimated 78 (47%) of regular voting stations requiring additional Public School Trustee ballots, as Elections used a ratio of 200:500 Trustee to Mayoral ballots ratio. Elections do not have analysis of previous general election voting patterns that supports the ratios used in the 2017 ballot initial allocation.

In addition, the number of ballots initially supplied to each voting station was based on the number of DRO 1's assigned to each voting station rather than directly to the number of enumerated voters. This led to fewer ballots being supplied to those nine voting stations that were understaffed (i.e. voting stations had fewer DRO 1's assigned than expected based on Elections current staffing standard). For example, we estimated that the largest voting station, based on enumerated voters, was supplied with only 40% of Mayoral, 24% of Councillor, 16% of Public School Trustee and 8% of the Separate School Trustee ballots.

A survey of election workers identified that voting stations had wait times of up to six hours for additional ballots requested from Elections. Interviews with two PDROs also indicated that voter wait times were impacted by individual voting station workers running out of ballots and therefore reducing the number election workers able to serve ballots to waiting voters.

Recommendation 1
The City Clerk/Returning Officer establish voting station initial ballot allocation procedures based on the estimated number of electors and historic voting patterns for each ballot type, supported by documentation stating how elector estimates are to be determined, and requirements to collect and analyze historic voting patterns.

Management Response

Agreed.

Action Plan	Responsibility
Document methodology used to determine ballot supply to voting stations based on enumeration data from other sources, current City census data and historical voter data over three general elections. Design a de-centralized model of ballot distribution throughout the city by establishing ward based distribution centres to improve the voting station 100% ready-available ballot allocation process.	Lead: City Clerk/Returning Officer Support: Manager, Elections and Census Commitment Date: September 30, 2019

4.2 Voting Station Facility Accessibility and Space

Elections did not have a sufficiently defined process and criteria to establish that all voting station facilities had accessibility, space and parking available that met stakeholder expectations.

An Elections survey of elections workers identified accessibility, space and parking was not satisfactory at 11, 13 and 15 voting stations respectively (based on 125 responding PDRO's). Election worker comments from the survey included difficult or no wheelchair access, lack of accessible parking or available parking in general, and lack of space due to receiving different space than agreed or expected, or having to share space with other users. Voting station accessibility and space issues were identified through interviews and comments received in the Elections election worker survey as having impacted the voter experience and, in some cases, increased voter wait times at voting stations that were too small for the number of election workers and voters.

In addition, while the average voting station served ward subdivisions with approximately 4,000 enumerated electors and the smallest had just over 1,000 enumerated electors, the two largest voting stations, referred to as "superstations", at Auburn Bay and Evanston had subdivisions with 12,462 and 10,341 enumerated electors respectively. We did not find evidence of additional consideration of facility accessibility and space issues, such as additional space for electors with mobility issues or adequate parking availability, necessary to accommodate the large number of enumerated voters at these two superstations. No individual voting station served such large subdivisions previously, with all subdivisions having fewer than 7,000 enumerated electors in the previous 2013 municipal election. Incident reports received by the Elections Office during Election Day indicated some voters were deterred from voting at the two superstations due to long voter wait times or car access issues. At Auburn Bay and Evanston 30% and 31% of enumerated electors voted on Election Day compared to the overall ward voter turnout of 40% and 44% respectively.

Recommendation 2
The City Clerk/Returning Officer define facility criteria, establish minimum standards, develop procedures and design monitoring controls to ensure all voting station facilities in future elections meet stakeholder expectations.

Management Response

Agreed.

Action Plan	Responsibility
Identify and consult with accessibility focused stakeholders (e.g. Advisory Committee on Accessibility and other disability-serving agencies in Calgary based on committee recommendations) and define facility criteria and standards that determine voting station accessibility and suitability that meet the City's Access Design standards where feasible. Design and document a process for conducting a pre-election visit to each voting site prior to completing the rental contract to ensure minimum requirements are met that is supported by a facility check-list. Documented procedures to include review of voting stations used at the federal and provincial level and consideration of using these voting stations where possible that meet the City's accessibility and suitability standards.	Lead: City Clerk/Returning Officer Support: Manager, Elections and Census Commitment Date: September 30, 2019

4.3 Voting Station Staffing
Elections did not have a detailed staffing plan supported by sufficient procedures to ensure that voting stations were allocated adequate staff to support the voting process and facilitate timely voting.

Staffing shortages were identified by staff interviews and election worker survey comments and indicated that shortages resulted in longer voting line ups.

Elections used a customized IT application to plan voting station staffing for Election Day. The IT application incorporates Elections staffing standards, which allocates specific numbers of election workers to voting stations based on the number of enumerated electors in each voting station subdivision. However, the basis for the Elections staffing standard is not documented, and Elections have not completed recent analysis to determine the peak rate of voters that can be processed by a role, or determined (if peak rate is exceeded) what constitutes an acceptable delay to voting. The IT system also allows manual adjustments to be

made by Elections staff (i.e. reducing staff allocated to voting stations to a level below that set by Elections staffing standard) but does not maintain a record or explanation of adjustments.

Every presiding deputy returning officer responding to an Elections survey identified that staffing was inadequate. In a review of staffing levels, nine voting stations serving ward subdivisions with the largest number of enumerated electors had on average 35% fewer staff (staff shortages ranging from 4-17) than expected based on current Elections staffing standards. The two superstations at Auburn Bay and Evanston were understaffed by the largest number of election workers. For example, Auburn Bay had 23 staff planned overall instead of 40 staff as per standard.

Recommendation 3
The City Clerk/Returning Officer develop a voting station staffing plan based on analysis of process, staff capacity, and acceptable peak voter wait times, supported by procedures including the allocation of staff to voting stations and recording explanations for any exceptions made.

Management Response

Agreed.

Action Plan	Responsibility
Document procedures for developing a voting station staffing plan that allocates election workers required at each voting station using the staffing standards developed and the estimated number of electors, with an explanation documented for all exceptions. Procedures will include development of contingency plans for a large turnout including the ability to redeploy election workers to meet demand. (Note, the process for determining the estimated number of electors to be determined in the action plan for Recommendation 1). Review and update voting station processes and election worker roles and responsibilities to accommodate acceptable peak voter wait times around which staffing standards and plans will be created.	Lead: City Clerk/Returning Officer Support: Manager, Elections and Census Commitment Date: September 30, 2019

4.4 Election Day Results Reporting
Insufficient After the Vote procedures (i.e. actions taken at voting stations after the last vote is cast), including accounting for ballots, completing the count, and submitting voting station results) and associated timelines and expectations, was a significant contributing factor to delays in the reporting of results.

Only 31 (19%) of regular voting stations reported Mayoral results and 16 (10%) of regular voting stations reported Councillor results were impacted by the web server disruption, as the web server manual workaround allowed public reporting of election results to resume at approximately 10:45 p.m. Half of regular voting stations reported their Mayoral results after 11:24 p.m. and Councillor results after 11:35 p.m.

After the Vote procedures did not clearly identify the sequence of time sensitive procedures or expected timelines for completion of key milestones. For example, it was not clear how long ballot accounting should take before voting stations either started the ballot count or sought assistance from the Elections Office.

Two of the four PDROs we interviewed found the After the Vote instructions unclear, including uncertainty as to the sequence of procedures. One of the PDROs delayed starting the ballot count at their voting station due to difficulties with ballot accounting and ended up completing both the count and ballot accounting at Elections Office early into the following morning. The PDRO was not aware that the count could have been completed and voting station result reported prior ballot accounting.

In addition Elections survey of election workers and comments from voting stations identified specific ballot accounting issues that delayed the reporting of results. These issues included unnecessarily delaying the count until ballot accounting was complete, or difficulties with ballot accounting resulting in multiple recounts before reporting results.

Recommendation 4
The City Clerk/Returning Officer document and communicate the voting station critical path of After the Vote procedures required for timely reporting of election results, including the sequence of procedures and expected timelines for completion of key milestones.

Management Response

Agreed.

Action Plan	Responsibility
Design and document After the Vote procedures; with step-by-step instructions and the minimum required paperwork, that will identify the sequence of procedures, expected timelines for completion, and election worker guidance on solving problems that could prevent the reporting of accurate results in the shortest time possible. Design and document After the Vote training materials that assist the election worker's understanding.	Lead: City Clerk/Returning Officer Support: Manager, Elections and Census Commitment Date: September 30, 2019

Appendix A – Interview Questions

Phase 1 interview questions utilized in each of the 16 interviews to gain an understanding of the unexpected events that occurred on Election Day:

1. What is your role in the Elections process overall and key responsibilities on Election Day?
    a. Where were you located?
    b. What was your work shift?
    c. Who were the key people you were working with that day?
    d. How many Election staff/workers were at your location?

2. What did you see as going as expected/not as expected during your shift on Election Day?

3. What did you see as the top unexpected events that occurred during your shift?

4. From your perspective, were there other top issues on Election Day that you did not directly see?

5. Could you tell me more about the top unexpected events that occurred (restricted to top 3 issues)?
    a. What happened?
    b. How did it impact the voter election experience?
    c. Why did it happen?
    d. What was the response to this event?
    e. What was your role in responding?
    f. What did others do in responding to this event?
    g. Was the response helpful and resolve the issue?
    h. When did it happen?
    i. Where did it happen?

6. What did you see as the key changes which occurred since the 2013 Election?
    a. Any key staff or training changes?
    b. Any key technology or procedure changes?

7. Are there any further comments that you would like to share with us on Election Day?